

F. TYSON.
PUMP.

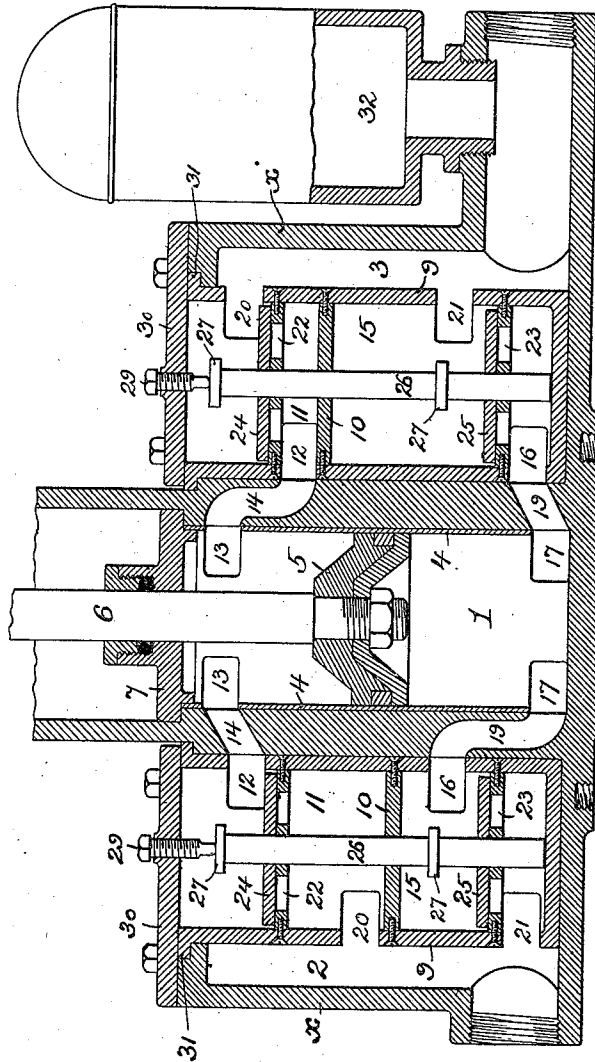
APPLICATION FILED JAN. 20, 1908.

1,062,375.

Patented May 20, 1913.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses
Harry L. Smith
Hamilton D. Turner

Inventor
Frank Tyson
by his Attorneys
Smith & Taggart

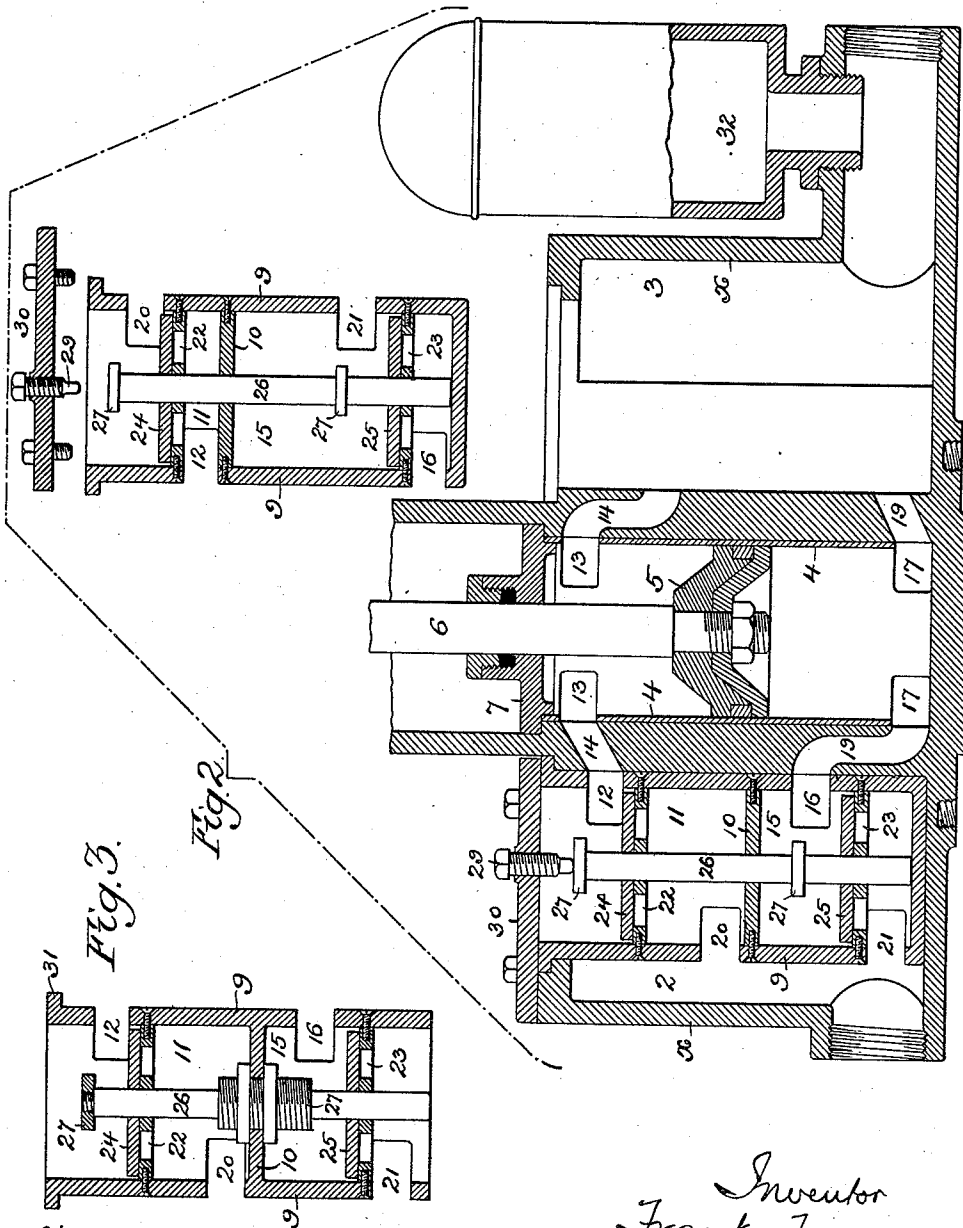
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UNITED STATES PATENT OFFICE.

FRANK TYSON, OF CANTON, OHIO.

PUMP.

1,062,375.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed January 20, 1908. Serial No. 411,774.

To all whom it may concern:

Be it known that I, FRANK TYSON, a citizen of the United States, residing in Canton, Ohio, have invented certain Improvements in Pumps, of which the following is a specification.

My invention is intended especially for application to pumps for causing flow of brine or other liquids which have an injurious effect upon the valves or valve seats, or cause the valves or their seats to become clogged or otherwise interfere with the proper operation of the valves, the object of my invention being to permit ready access to the valves or their seats when necessary.

In the accompanying drawings—Figure 1 is a longitudinal, vertical, sectional view of a pump constructed in accordance with my invention; Fig. 2 is a similar view with one of the valve cages removed from the pump casing, and Fig. 3 is a vertical sectional view illustrating a certain modification of my invention.

The pump casing *x* contains the piston chamber 1 and induction and eduction chambers 2 and 3, the piston chamber being preferably lined, as at 4, for the reception of the piston 5, which is connected to a rod 6 passing through a stuffing box in a detachable cover 7 and connected to any suitable means whereby it can be reciprocated.

To both induction and eduction chambers of the pump casing is fitted a cage carrying the valves and valve seats, and as both of these cages and the parts carried thereby are alike a description of one will suffice.

The cage consists, by preference, of a cylindrical shell 9 closed at the bottom and having a transverse partition 10 rigidly, but detachably, secured within it so as to divide it into an upper chamber 11, communicating, through ports 12 and 13 and a passage 14, with the upper end of the piston chamber of the pump, and a lower chamber 15, communicating, through ports 16 and 17 and a passage 19, with the lower end of said piston chamber, the upper chamber 11 also communicating with the induction or eduction passage by means of a port 20, and the lower chamber 15 likewise communicating with the induction or eduction passage by means of a port 21.

Rigidly, but detachably, secured within the cage 9 is an upper valve seat 22 and a lower valve seat 23, the upper valve seat receiving the upper induction or eduction

valve 24 and the lower valve seat receiving the lower induction or eduction valve 25, both of these valves being free to slide upon a rod 26 having stop collars 27 thereon for limiting the lift of the valves.

The rod 26 passes through openings in the upper and lower valve seats and in the interposed partition and normally rests upon the bottom of the cage 9, being retained in this position, when the pump is in operation, by means of a set screw 29, which bears upon the top of the rod and is adapted to a threaded opening in a cap or cover plate 30, secured to the top of the pump casing *x* and bearing upon the top of the valve cage so as to retain the latter in position in the casing. The valve cage has, by preference, around the top, a flange 31, seated in a recess in the pump casing, in order to insure the formation of a tight joint between said casing and the cage, and the eduction chamber of the pump is, by preference, provided with the usual air chamber 32.

When access to either of the valves or valve seats becomes necessary the cover plate 30 is removed and the cage containing said valves and valve seats can then be readily lifted or withdrawn from the pump casing, as shown in Fig. 2, and either of the valves or valve seats is then accessible for cleaning or repairing, or can be readily removed and replaced by a new one if necessary.

If the valve cage is open at both ends the partition 10 may be integral with said cage, as shown for instance in Fig. 3, and the guide rod 26 may, in this case, be secured to the partition 10, as also shown in said figure, the collar at the upper or outer end of the rod in such case being, by preference, detachable, as shown, in order that one valve seat and its valve can be removed from one end of the cage and the other valve seat and its valve from the opposite end of said cage, without removing the guide rod.

The term "open-ended" as used in certain of my claims is intended to apply either to the cage which is open at one end only or to that which is open at both ends.

I claim:—

1. The combination of the pump casing with a detachable open-ended shell containing upper and lower valves and having a partition whereby the chamber above the lower valve is separated from the chamber below the upper valve irrespective of whether the valves are open or closed, and a

detachable valve seat in each of said chambers, the upper valve seat being so far above the partition as to provide a flow chamber between the two.

5 2. The combination of a pump casing with a detachable open-ended cage containing upper and lower valves and having a partition whereby the chamber above the lower valve is separated from the chamber below
10 the upper valve, and detachable valve seats in each of said chambers, the partition being also detachable, whereby both valves, both valve seats and the partition can be removed from the top of the cage.

15 3. The combination of a pump casing with a detachable cage closed at one end and open at the other, and containing upper and lower valves, a detachable partition in the said cage whereby the chamber above the

lower valve is separated from the chamber 20 below the upper valve, and a detachable valve seat in each of said chambers.

4. The combination of a pump casing with a detachable cage closed at one end and open at the other, and containing upper and lower 25 valves, a detachable partition in said cage whereby the chamber above the lower valve is separated from the chamber below the upper valve, and a detachable guide rod for the valves with stops for limiting the open- 30 ing movement of the same.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

FRANK TYSON.

Witnesses:

H. B. STEWART,
WM. SIMPSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."